

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A method of plating a conductive top surface of a workpiece, the conductive top surface of the workpiece including a top portion and a cavity portion, the method comprising the steps of:

applying, over the conductive top surface of the workpiece, an electrolyte solution with at least one additive disposed therein, ~~a first portion of the additive becoming adsorbed on the top portion and a second portion of the additive becoming adsorbed on the cavity portion;~~

applying a mask in spaced relation to the top portion of the workpiece and creating a relative motion between ~~moving the mask relative to~~ and the workpiece to remove from the top portion of the workpiece an amount ~~a part of the first portion~~ of the additive previously adsorbed on the top portion through an indirect external influence; ~~and~~

applying a voltage between an electrode and the conductive top surface of the workpiece;  
and

plating the conductive top surface of the workpiece before the additive fully re-adsorbs onto the top portion and while the mask is maintained in at least the spaced relation to the top portion of the workpiece, thereby causing greater plating of the cavity portion relative to the top portion.

2. (original) The method according to claim 1 wherein the step of applying applies the mask to within .75 mm of the top surface of the workpiece.

3. (original) The method according to claim 1 wherein the step of applying applies the mask to within a range of 0.1 to 0.5 mm of the top surface of the workpiece.

4. (currently amended) The method according to claim 3 wherein the relative motion ~~movement~~ is at a speed between the range of 1 to 100 cm/s.
5. (original) The method according to claim 1 wherein the at least one additive includes an accelerator.
6. (original) The method according to claim 5 wherein, during the step of plating, more additive is adsorbed on the cavity portion than on the top portion.
7. (currently amended) The method according to claim 6 wherein the step of plating takes place ~~only~~ before ~~the part of the first portion~~ amount of the additive that was removed fully re-adsorbs.
8. (currently amended) The method according to claim 6 wherein ~~the steps of applying the~~ external influence, ~~removing the mask~~ applying the voltage, and plating are repeated.
9. (original) The method according to claim 1 wherein the at least one additive includes a plurality of additives, comprising both an inhibitor and an accelerator.
10. (currently amended) The method according to claim 9 wherein, ~~the step of applying the~~ external influence removes a greater percentage of the accelerator than the inhibitor as a result of the inhibitor having a stronger adsorption characteristic than the accelerator.

11. (original) The method according to claim 10 wherein the step of plating takes place only before the accelerator that was removed fully re-adsorbs onto the top portion.
12. (currently amended) The method according to claim 11 wherein ~~the steps of applying the~~ external influence, ~~removing the mask~~ applying the voltage, and plating are repeated.
13. (currently amended) The method according to claim 9 wherein, after ~~the step of applying~~ the external influence, the inhibitor re-adsorbs more quickly than the accelerator onto the top portion of the workpiece.
14. (original) The method according to claim 13 wherein the step of plating takes place during and after the inhibitor re-adsorbs and before the accelerator that was removed fully re-adsorbs onto the top portion.
15. (currently amended) The method according to claim 14 wherein ~~the steps of applying the~~ external influence, and plating are repeated.
16. (original) The method according to claim 1 wherein the step of plating includes moving the mask further away from the top surface of the workpiece.
17. (currently amended) The method according to claim 1 wherein the step of ~~plating~~ applying the voltage includes the step of providing pulsed power during plating.

18. (currently amended) The method according to claim 1 wherein the step of ~~applying~~ the relative motion ~~external influence~~ causes an area of the top portion which had previously been subjected to the external influence to align with an open area of the mask so that during the step of plating a plating current ~~exists~~ flows between ~~an~~ the area of the workpiece corresponding to the open area of the mask and the electrode ~~an anode~~.

19. (currently amended) The method according to claim 18 wherein during the step of plating, a the plating current ~~pulse~~ with a first current density is formed within the open area of the movable mask between the electrode ~~anode~~ and the area of the workpiece corresponding to the open area of the mask, the first current density being greater than a second current density that exists in another area of the workpiece that is covered by the moveable mask.

20. (currently amended) The method according to claim 19 wherein, over a period of time, a plurality of current pulses are formed between the electrode ~~anode~~ and different areas of the workpiece.

21. (original) The method according to claim 20 wherein the plurality of current pulses, summed together, equal a DC current provided by a power source.

22. (currently amended) The method according to claim 18 wherein the step of ~~plating~~ applying the voltage includes the step of providing DC power during plating.

23. (currently amended) The method according to claim 22 wherein the step of providing DC power operates in a current controlled mode in which a the plating current is held substantially constant.
24. (original) The method according to claim 22 wherein the step of providing DC power operates in a voltage controlled mode in which a plating voltage is held substantially constant.
25. (currently amended) The method according to claim 1 wherein the step of ~~plating~~ applying the voltage includes the step of providing DC power ~~during plating~~.
26. (original) The method according to claim 1 wherein the step of plating plates copper.
27. (original) The method according to claim 1 wherein the step of plating plates a copper alloy.
28. (currently amended) The method according to claim 1 wherein ~~the step of applying~~ the external influence to the top portion causes a differential in a surface resistance between the top portion and the cavity portion.
29. (original) The method according to claim 1 further including the step of adding another additive to the electrolyte that assists in loosening a bond between the additive and the surface of the workpiece.

30. (currently amended) A method of plating a conductive top surface of a workpiece, the conductive top surface of the workpiece including a top portion and a cavity portion, the method comprising the steps of:

applying an electrolyte solution with at least one additive disposed therein over the conductive top surface of the workpiece;

applying a mask in spaced relation to the top portion of the workpiece; ~~and moving the mask~~

creating a relative motion between the mask and the workpiece to create an effect such that the at least one additive will enhance plating on the cavity portion more than on the top portion; ~~and~~

applying a voltage between an electrode and the conductive top surface of the workpiece;  
and

plating the conductive top surface of the workpiece while the effect from the step of ~~applying~~ creating the relative motion ~~the external influence~~ is maintained and while the mask remains moved away from the workpiece.

31. (currently amended) The method according to claim 30 wherein the effect in the step of ~~applying~~ creating the relative motion ~~mask is to create~~ creates a differential in an amount of the at least one additive that is adsorbed on the top portion relative to the cavity portion.

32. (currently amended) The method according to claim ~~46~~ 30 wherein the step of applying the mask applies the mask to within .75 mm of the top surface of the workpiece.

33. (currently amended) The method according to claim ~~46~~ 30 wherein the step of applying the mask applies the mask to within a range of 0.1 to 0.5 mm of the top surface of the workpiece.

34. (currently amended) The method according to claim 33 wherein the relative motion ~~movement~~ is at a speed between the range of 1 to 100 cm/s.

35. (original) The method according to claim 30 wherein the at least one additive includes an accelerator.

36. (original) The method according to claim 35 wherein, during the step of plating, more additive is adsorbed on the cavity portion than on the top portion.

37. (original) The method according to claim 35 wherein the step of plating takes place while the effect still exists.

38. (original) The method according to claim 37 wherein the step of plating takes place only while the effect still exists.

39. (currently amended) The method according to claim 30 wherein the step of ~~applying~~ creating the relative motion ~~mask~~ reduces an amount of the additive adsorbed on the top portion for a period of time.

40. (currently amended) The method according to claim 39 wherein the effect in the step of ~~applying~~ creating the relative motion mask ~~is to create~~ creates a differential in the amount of the at least one additive that is adsorbed on the top portion relative to the cavity portion.

41. (original) The method according to claim 40 wherein the at least one additive includes a plurality of additives, comprising both an inhibitor and an accelerator.

42. (original) The method according to claim 41 wherein, after the step of applying the mask, the differential exists as a result of the inhibitor having a stronger adsorption characteristic than the accelerator.

43. (currently amended) The method according to claim 41 wherein, after the step of ~~applying~~ creating the relative motion mask, the differential exists as a result of the inhibitor having a faster adsorption rate than the accelerator.

44. (original) The method according to claim 30 wherein the steps of applying the mask and plating are repeated.

45. (currently amended) The method according to claim ~~30~~ 31 wherein the at least one additive includes a plurality of additives, comprising both an inhibitor and an accelerator.

46. (original) The method according to claim 45 wherein, after the step of applying the mask, the differential exists as a result of the inhibitor having a stronger adsorption characteristic than the accelerator.



47. (original) The method according to claim 45 wherein, after the step of applying the mask, the differential exists as a result of the inhibitor having a faster adsorption rate than the accelerator.

48. (currently amended) The method according to claim 30 wherein the step of ~~plating~~ applying the voltage includes the step of providing pulsed power during plating.

49. (currently amended) The method according to claim 30 wherein the step of ~~plating~~ applying the voltage includes the step of providing DC power during plating.

50. (currently amended) The method according to claim 30 wherein the step of ~~applying the external influence~~ creating the relative motion causes an area of the top portion which had previously been subjected to the effect ~~external influence~~ to align with an open area of the mask so that during the step of plating a plating current exists between ~~the~~ an area of the workpiece corresponding to the open area of the mask and the electrode ~~an anode~~.

51. (currently amended) The method according to claim 50 wherein during the step of plating, a the plating current ~~pulse~~ with a first current density is formed within the open area of the movable mask between the electrode ~~anode~~ and the area of the workpiece corresponding to the open area of the mask, the first current density being greater than a second current density that exists in another area of the workpiece that is covered by the moveable mask.

52. (currently amended) The method according to claim 51 wherein, over a period of time, a plurality of current pulses are formed between the electrode anode and different areas of the workpiece.

53. (original) The method according to claim 52 wherein the plurality of current pulses, summed together, equal a DC current provided by a power source.

54. (currently amended) The method according to claim 50 wherein the step of applying the voltage plating includes the step of providing DC power during plating.

55. (currently amended) The method according to claim 54 wherein the step of providing DC power operates in a current controlled mode in which a the plating current is held substantially constant.

56. (original) The method according to claim 54 wherein the step of providing DC power operates in a voltage controlled mode in which a plating voltage is held substantially constant.

57. (original) The method according to claim 30 wherein the step of plating plates copper.

58. (original) The method according to claim 30 wherein the step of plating plates a copper alloy.

59. (original) The method according to claim 30 wherein the step of ~~applying the external influence~~ creating the relative motion to the top portion causes a differential in a surface resistance between the top portion and the cavity portion.